Focus Report for Case # L-13-0727

General

Report Status:	Complete	**Status Date:**	10/30/2013
Focus Date:		**CRSS Date:**	
Focus Chair:	[redacted]	**Consolidated PMN?:**	
Submitter:	[redacted]	**Contractor:**	Legacy Placeholder
Chemical Name:	1,3,2-Dioxathiolane, 2,2-dioxide		
Bind:	☑	**Import:**	☐
Use:	[redacted]		
Other Use:	[redacted]		
Manufacture:		**PV-max(kg/yr):**	[redacted]

Categories

Health Chemical Category:	
Ecotox SARs:	esters
Ecotox SAR Class:	ester
Ecotox New Chemical Category:	Esters

Levels of Concern

Occupational Exposure: 2B

Bioaccumulation:

Persistence:	Bioaccumulation:	Toxicity:	PBT Comments:
2	1	2	

Bioaccumulation Comments:

Ecotox Rating 2:

Health Rating 1: 2

Health Rating 1 Comment:

Health Rating 2:

Health Rating 2 Comment:

Toxicity Comments:

SAT
Assessment

Fate Summary:

L-13-0727
FATE:
[redacted]
log
Kow = -0 90 (E)
S > 10 g/L at 25 C (E)
VP = 4 4E-2 torr at 25
C (E)
BP = 209 C (E)
H = 1 15E-6 (E)
log Koc = 0 97 (E)

log Fish BCF = 0 50 (E)
log Fish BAF = -0 05 (E)
POTW removal
(%) = 0-25
Time for complete ultimate aerobic biodeg = wk

Sorption to soils/sediments = low
Volatilization half-life from a
standard river = 570 hrs
Volatilization half-life from a standard lake
= 260 da
Atmospheric Oxidation Half-life = 120 hr via OH radical

PBT Potential: P2B1
*CEB FATE: Migration to ground water =
rapid

Health Summary:

Absorption is nil through the skin for the neat material,
moderate through the skin for the material in solution, and moderate
through the lung and GI tract, based on physical/chemical properties The
LVE substance is a potential alkylating agent There are concerns for
severe irritation/possible corrosion to the eye, skin, and lung, dermal
sensitization, acute, liver and developmental toxicities, mutagenicity,
and oncogenicity, based on the [redacted] and submitted test
data

SAT Risk Assessment:

Test Data Submitted: Submitted with [redacted]:

Corrosive to male rabbit eyes, causing irreversible damage: test terminated after one day;
Corrosive to male rabbit skin, causing irreversible damage: test terminated after one day;
Dermal sensitizer in male guinea pigs

Ecotox: Ecotoxicity Values

Test organism	Test Type	Test Endpoint	Predicted	Measured	Comments
Fish	96-h	LC50	>100		
Daphnid	48-h	LC50	>100		
Green Algae	96-h	EC50	>100		
Fish	-	Chronic Value	>10		
Daphnid	-	Chronic Value	>10		
Green Algae	-	Chronic Value	>10		

Ecotox Value Comments:

Predictions are based on SARs for esters; SAR chemical class = ester; [redacted] with m[redacted] at 20 C [redacted] effective concentrations based on 100% active ingredients and nominal concentrations; hardness <150 0 mg/L as CaCO3; and TOC <2 0 mg/L;

Test data was submmitted for [redacted]

Ecotoxicity Test Data Results
Case Number: [redacted]

Chemical Name: [redacted]

Trade Name: [redacted]
Initial Data Review

Fish Ecotoxicity Test:

[redacted]

[redacted]

Daphnid Ecotoxicity Test:

[redacted]

[redacted]

Algal Ecotoxicity Test:

[redacted]

[redacted]

Acute CoC = 20,000 ppb
Chronic
CoC = 1,000 ppb

Ecotox Study Reviewer: [redacted]

Ecotox Factors

Factors	Most Sensitive Endpoint	Assessment Factor	CoC	Comment
Acute Aquatic:		10		
Chronic Aquatic:			1000	
Recommended Testing:				
Ecotox Factors Comments:				

Exposure Based Information:

Criteria	Value	Amount
1. Number of Workers Exposed > 1000?	0	
2. > 100 Workers With > 10 mg/Day Inhalation Exposure	0	
3a. > 100 Workers With 1-10 mg/Day Inhalation Exposure >100 Days/Yr	0	
3b. > 250 Workers With Routine Dermal Contact > 100 Days/Yr	0	

Exposure Based Review (Chemistry): N	Exposure Based Review (Health): N
Exposure Based Review (Ecotox): N	Exposure Based Review (Occupational): Y
Exposure Based Review (Non-Occupational):	Exposure Based Review (Occupational): Y

Exposure/Release Summary

Engineering Summary Release

Exposures/Releases	Exposure	Exposure
Scenario	[redacted]	[redacted]
Site	[redacted]	[redacted]
Media	Inhalation	Inhalation
Descriptor A	Worst Case	Worst Case
Quantity A (kg/site-day)	[redacted]	[redacted]
Frequency A	[redacted]	[redacted]
Descriptor B	Typical	Typical
Quantity B (kg/site-day)	[redacted]	[redacted]
Frequency B	[redacted]	[redacted]
From	Loading Liquid Product into Drums	Unloading Liquid Raw Material from Drums
Workers	[redacted]	[redacted]
ExposureType	[redacted]	[redacted]

Exposure
Summary Release

Chemical ID:

Reviewer:

Exposure Scenario	Water						Land fill (non-sludge)	Stack		Fugitive	
Release Activity(ies) exposure Calculations	Fish Ingestion										
	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day	7Q10cc ug/l	PDM Exceeded # Days	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day

1.Exposure scenario titles consist of release activity followed by exposure calculation abbreviation.
2.Release activities are from engineering report's Manufacturing (Mfg), Processing (Proc) and Use release activity labels.Multiple release activities are combined in one exposure scenario if their releases occur at same location.
3.Exposure calculations are Acute Dose Rate (ADR), Lifetime Average Daily Dose (LADD), and Probabilistic Dilution Model (PDM). There may be one, two, or all three exposure calculations per exposure scenario. CC is the aquatic concentration of concern.
4.This column displays concentration values for the 7Q10 streamflow, which is defined as the average daily streamflow of the seven consecutive days of lowest flow within a ten year period.

Scenario	Water(DtD						Dermal		Inhalation	
	Drinking Water		Fish Ingestion							
	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day	7Q10cc ug/l	PDM Exceeded # Days	ADR mg/kg/day	LADD mg/kg/day	ADR mg/kg/day	LADD mg/kg/day

Result Table : Exposure Based(XB)/Persistent (P2B2) Criteria

Parameter	Exp Based	Persistent	Exceedence Value
Drinking(Surface) Water Dose (mg/kg/day)			
Fish Ingestion Dose (mg/kg/day)			
Inhalation Dose (mg/kg/day)			
Groundwater Dose (mg/kg/day)			

Parameter	Exp Based	Persistent	Exceedence Value
Surface Water Release After Treatment (kg/yr)			
Total Release After Treatment (kg/yr)			
Consumer Use?			

Regulatory Actions

Focus Decision Date: 10/31/2013

Focus Decision: LVE Conditional Grant

Type of Decision:

Rationale: L-13-0727 was given a conditional grant based on modifying the MSDS and binding to the production volume and PPE specified in the modified MSDS Absorption is nil through the skin for the neat material, moderate through the skin for the material in solution, and moderate through the lung and GI tract, based on physical/chemical properties Human health hazard concerns were moderate for severe irritation/possible corrosion to the eye, skin, and lung, dermal sensitization, acute, liver and developmental toxicities, mutagenicity, and oncogenicity, b [redacted] and submitted test data Workers are expected to be exposed via the dermal and inhalation routes The submitter must amend the MSDS to include impervious gloves, tight fitting goggles, and a NIOSH-certified particulate respirator Ecotoxicity hazard concerns were low based on submitted test data from the [redacted] as well as QSARs Potential risks to the environment were low due to no exceedances of the COC during the release period This LVE was [redacted] assessed at [redacted] RAD will revise the ecotox report to reflect the submitted test data from cases [redacted]

COC: Chronic – 1,000 ppb, Acute – 20,000 ppb

Summary of Exposures and Releases

[redacted]

Fate Releases to Water [redacted]
SWC: 21 91 ppb
DW:
LADD: 7 89E-06 mg/kg/day, ADR: 1 07E-03 mg/kg/day
FI: LADD: 1 07E-07

mg/kg/day, ADR: 2 44E-05 mg/kg/day

[redacted]
2 63E-05 mg/kg/day

[redacted] ADR:
2 39E-02 mg/kg/day

[redacted]

Fate Releases to Water [redacted]
SWC: 1021 28 ppb
DW: LADD: 3 28E-04 mg/kg/day, ADR:
4 56E-02 mg/kg/day
FI: LADD: 4 45E-06 mg/kg/day, ADR: 3 49E-04
mg/kg/day

[redacted]

Short Question Rationale:

P2 Rec:

P2 Rec Comments:

Related Cases/Regulatory History

Ecotox Related Cases: [redacted]

Ecotox Related Cases: [redacted]

Regulatory: [redacted]

Testings

Testing Ecotox 1:

Testing Fate:

Testing Fate 1:

Testing Health 1:

Testing Other:

MSDS/Label Information

MSDS:	Y
Label:	N
General Equipment:	[redacted]
Respirator:	[redacted]
Health Effects:	[redacted]
TLV/PEL:	[redacted]
TLV/PEL:	[redacted]

New Comments

Focus Input: